UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,584	02/28/2002	Ron P. Maurer	100202761-1	3918

7590 12/01/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
COUSO, YON JUNG	

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/087,584	MAURER ET AL.	
	Examiner	Art Unit	
	Yon Couso	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-12 and 14-22* is/are pending in the application.

4a) Of the above claim(s) *9-12 and 21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,8 and 14-20* is/are rejected.

7)☒ Claim(s) *4 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This office action is in response to the amendment filed on September 8, 2004.

a. The rejections under 35 USC 112, first and second paragraphs have been withdrawn.

b. The objection made to claim 15 has been withdrawn.

c. The objection made to the drawing has been withdrawn.

d. With regard to the restriction requirement, the examiner maintains the restriction requirement. The applicants' argument, both groups are in the same class, is not a convincing argument for it is possible to have two separate inventions even within the same class and subclass. Claims 1-6, 8, and 14-20, are drawn to a method of image processing comprising analyzing, deriving, and storing, classified in class 382, subclass 254 (image enhancement) and claims 9-12 and 21, are drawn to a method of estimating tone background comprising generating edge-metrics, generating a first histogram, using the edge-metrics, and estimating, classified in class 382, subclass 199 (pattern boundary and edge measurement). The inventions are distinct and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

e. The applicants argue that the Nara does not teach or suggest producing statistical data. The applicants further argue that Nara does not teach or suggest deriving background removal data based on the statistical data. The examiner notes that Nara teaches statistical analyzer and deriving background removal data, based on the statistical data (paragraphs 136-142 and figures 19 and 20). The clipping circuit clipping all the image data satisfying the condition of the threshold value reads on the

deriving statistical data and deriving, Dth1, which is used to remove the noise effect of the background, reads on the deriving background removal data based on the statistical data.

f. In view of the remarks made by the applicants under 35 USC 103 rejections, the claims 4 and 22 are now objected to.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 6, 8, and 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Nara (U.S. Publication 2002/0060819 A1, previously cited, "Nara").

The arguments advanced in paragraph 1 above as to the applicability of the reference are incorporated herein.

In regards to claims 1 and 15, Nara discloses a system for processing a digital image corresponding to a scanned document, the system comprising: statistical analyzer for analyzing the image to obtain statistical data; function derivator for deriving background removal data for the image based on the statistical data (paragraphs 136-142 and figures 19 and 20). Regarding Fig 17, paragraph 0146 discloses as shown in Fig 17, the

threshold data Dth1 is attached to the image data Drd1, where Fig 4, ref no 58, is an image memory.

In regards to claims 2 and 17, Nara further discloses in ref no 43, Fig 14, and paragraph 0085, the statistical analyzer pre-processing the image while analyzing the image and using intermediate results obtained from pre-processing the image to obtain the statistical data.

In regards to claims 3 and 18, Nara further discloses in Fig 19(b) and paragraphs 0161 and 0164, the background noise removal data including a tonemap function or sampled values of the tonemap function.

In regards to claim 19, Nara further discloses in paragraph 0170, the system further comprising a user interface for allowing viewing of a rendering of image data dependent on the user selection.

In regards to claims 8 and 20, Nara further discloses in paragraph 0171, the system further comprising a user interface including an option allowing the selection of background noise removal on a page-by-page basis.

In regards to claim 5, Nara further discloses in paragraph 0137, the method wherein analyzing the image further comprising estimating a global background tone value.

In regards to claim 6, Nara further discloses in paragraph 0152, the background noise removal data being derived from the global background tone value.

In regards to claim 16, Nara further discloses in Fig 4, ref no 46, the statistical data and the background noise removal data being obtained in real time, as the document is being scanned. Note that ref no 46 is prior to ref no 58, image memory.

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nara (U.S. Publication 2002/0060819 A1) as applied to claim 1, in further combination with Matsugu (U.S. Patent 6,636,635 B2) and Ito (U.S. Patent 6,144,763).

In regards to claim 14, Nara does not expressly disclose the statistical data is obtained from the luminance channel.

However, Nara discloses in paragraph 0087 using one peak of the image data to detect a document background level with sufficient accuracy.

Matsugu teaches in col 30, lines 29-32, obtaining statistical data from the luminance channel.

Matsugu and Nara are combinable because they are from the art of threshold setting.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Matsugu's luminance as Nara's one peak.

The suggestion/motivation would have been to use the most discriminant feature (luminance) to isolate the background from a document image.

Therefore, it would have been obvious to combine Matsugu with Nara.

Nara and Matsugu do not expressly disclose the image being color-converted to a luminance-chrominance color space prior to obtaining the statistical data.

However, Nara discloses the image input from a CCD (Fig 4, ref no 13) and Matsugu discloses using luminance to determine thresholds (col 30, lines 29-32).

Ito teaches in col 4, lines 55-59, the image being color-converted to a luminance-chrominance color space prior to obtaining statistical data.

Ito and Nara, and Matsugu are combinable because they are from the art of CCD image pre-processing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ito's color conversion into Nara, and Matsugu's method.

The suggestion/motivation would have been to properly convert the RGB CCD input into luminance values for processing. An additional benefit would have been to reduce the data representing the image for easier storage.

Therefore, it would have been obvious to combine Ito with Nara and Matsugu to obtain the invention as specified.

4. Claims 1, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakamoto (US 6,603,880).

In regards to claims 1 and 15, Sakamoto discloses a system for processing a digital image corresponding to a scanned document, the system comprising: statistical analyzer for analyzing the image to obtain statistical data; function derivator for deriving background removal data for the image based on the statistical data (column 24, lines 32-61 and column 27, lines 7-49) and data storage for storing the image data and the background removal data together (300 in figure 3).

In regards to claim 14, Sakamoto discloses that the statistical data is obtained from the luminance channel (abstract, lines 4-8).

5. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Harvill (US2003/0117392 A1).

In regards to claim 1, Harvill discloses a system for processing a digital image corresponding to a scanned document, the system comprising: statistical analyzer for analyzing the image to obtain statistical data; function derivator for deriving background removal data for the image based on the statistical data (claim 3).

6. Claims 4 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yon Couso whose telephone number is (703) 305-4779. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YJC

YON J. COUSO
PRIMARY EXAMINER

November 23, 2004